Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of cleaning a substrate processing apparatus comprising a processing container defined by an outer wall, a holding stage connected to a high-frequency power supply and provided in said processing container for holding a processing substrate, an exhaust port for evacuating the inside of said processing container, a microwave transmissive window provided on said processing container as part of said outer wall so as to face said processing substrate, a microwave antenna provided on said microwave transmissive window and electrically connected to a microwave power supply, a plasma gas supply portion for supplying a plasma gas into said processing container, and a process gas supply portion interposed between ~~said processing substrate on~~ said holding stage and said microwave transmissive window ~~so as to face said processing substrate~~ for supplying a process gas into said processing container to process said processing substrate, said method comprising:

a gas introducing step of introducing a cleaning gas into said processing container from a location adjacent to said microwave transmissive window at a particular time corresponding to cleaning of said substrate processing apparatus,

a plasma exciting step of introducing a microwave into said processing container from said microwave antenna through said microwave transmissive window at the particular time to thereby excite a plasma in said processing container, said plasma disassociating said cleaning gas, and

a bias applying step of applying a high-frequency power to said holding stage from said high-frequency power supply at the particular time to raise a potential of said plasma in said processing container,

wherein only the cleaning gas and not the process gas is introduced into said processing chamber at the particular time.

2. (Currently Amended) The method according to claim 1, wherein said process gas supply portion is made of a conductive material and is grounded.

3. (Previously Presented) The method according to claim 1, wherein said microwave antenna is power-fed through a coaxial waveguide and comprises an antenna body having an opening portion, a microwave radiating surface having a plurality of slots and provided on said antenna body so as to cover said opening portion, and a dielectric provided between said antenna body and said microwave radiating surface.

4. (Previously Presented) The method according to claim 1, wherein said cleaning gas contains oxygen.

5. (Previously Presented) The method according claim 1, wherein said cleaning gas contains hydrogen.

6. (Previously Presented) The method according to claim 1, wherein said cleaning gas contains H_2O.

7. (Previously Presented) The method according to claim 1, wherein said cleaning gas contains a fluorine compound.

8. (Previously Presented) The method according to claim 1, wherein said cleaning gas is introduced from said plasma gas supply portion interposed between said microwave antenna and said process gas supply portion.

9. (Previously Presented) The method according to claim 1, wherein said cleaning gas is introduced from said process gas supply portion.

10. (Previously Presented) The method according to claim 1, wherein said cleaning gas is dissociated by said microwave plasma and a high-frequency plasma excited by said high-frequency power so as to be reactive species, and a deposit deposited inside said processing container is etched by said reactive species so as to be removed.

11. (Original) The method according to claim 10, wherein said deposit contains a fluorine-added carbon film.

12. (Previously Presented) The method according to claim 1, further comprising:

concurrently with the gas introducing step, introducing a diluent gas into said processing chamber.

13. (Previously Presented) The method according to claim 12, wherein the cleaning gas contains hydrogen and oxygen, and wherein the diluent gas contains argon.

14. (Previously Presented) The method according to claim 13, wherein both the cleaning gas and the diluent gas are introduced into said processing chamber by way of said process gas supply portion.

15. (Previously Presented) The method according to claim 1, further comprising:

monitoring a change in intensity of light within said processing chamber; and

stopping the applying of the high-frequency power when the intensity of light is determined to have changed in intensity by at least a predetermined amount.